

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
31 July 2003 (31.07.2003)

PCT

(10) International Publication Number  
**WO 03/062077 A1**

(51) International Patent Classification<sup>7</sup>: **B65D 33/16, H05B 6/54**

(21) International Application Number: **PCT/US03/01142**

(22) International Filing Date: **15 January 2003 (15.01.2003)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:  
10/054,066 22 January 2002 (22.01.2002) US

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(81) Designated States (*national*): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

(84) Designated States (*regional*): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**

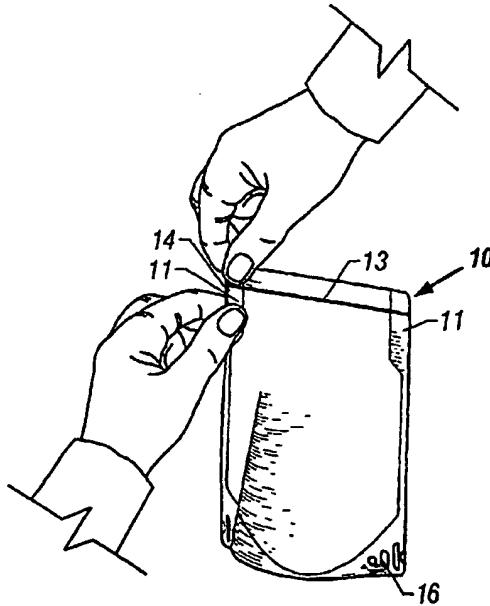
Published:  
— with international search report

[Continued on next page]

(54) Title: ANGLED SEALING PATTERN FOR RETORT POUCH TO CREATE COLD CORNERS



**WO 03/062077 A1**



(57) Abstract: A retort bag (10) that is easy to handle has a cold corner (11) to provide a point of contact for the consumer, thus preventing scalding of the person handling the bag.



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## ANGLED SEALING PATTERN FOR RETORT POUCH TO CREATE COLD CORNERS

### BACKGROUND OF THE INVENTION

#### **Field of the invention**

[0001] The present invention relates to an easy to handle retort bag. More specifically, the retort bag has a cold corner to prevent scalding of the person handling the bag.

#### **Related Art**

[0002] Microwave packages for food products are well known and used in the food packaging art. The packages are generally formed from thermoplastic materials. Microwave packages, which use microwave energy to heat and cook food products, become extremely hot. Since the packaging is extremely hot, the consumer must result to an awkward manipulation of the hot package with consequent risk of spillage and/or scalding of the person manipulating the package.

[0003] Therefore, there is a need in the art for a microwave cooking package system which may be used to cook a fresh, frozen or refrigerated, cooked or uncooked food item in a microwave oven that is safe to be held by the consumer upon withdrawing the food item package from the microwave oven, does not burn the consumer, and is easy to open. Thus, the present invention allows for immediate handling of the package and eliminates the need for additional utensils to open the package.

### BRIEF SUMMARY OF THE INVENTION

[0004] The present invention is directed to a retort bag having a top, a bottom and coplanar side edges. The top and bottom edges have transverse seals. In specific aspects, the top transverse seal is angled to provide a cold corner for handling the bag.

[0005] Another embodiment of the present invention is a method of sealing a retort bag having a cold corner by sealing a top portion of the retort bag in an angle to provide a cold corner for handling the bag.

[0006] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will

be described hereinafter which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims. The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present invention.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

[0007] For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawing, in which:

[0008] FIG. 1 illustrates a front view of the retort bag according to the present invention;

[0009] FIG. 2 illustrates a side view of a retort bag containing a cooked food item;

[0010] FIG. 3 shows a side view of a retort bag being handled by a cold corner;

[0011] FIG. 4 is a side view of a retort bag being opened;

[0012] FIG. 5 is a side view of an opened retort bag;

[0013] FIG. 6 shows the gussett bottom of a retort bag.

#### **DETAILED DESCRIPTION OF THE INVENTION**

[0014] It is readily apparent to one skilled in the art that various embodiments and modifications can be made to the invention disclosed in this Application without departing from the scope and spirit of the invention.

[0015] As used herein, the use of the word "a" or "an" when used in conjunction with the term "comprising" in the sentences and/or the specification can mean "one," but it is also consistent with the meaning of "one or more," "at least one," and "one or more than one."

[0016] Referring to Figure 1, the retort bag (10) is formed from a thermoplastic film, such as a polyethylene film. The bag contains a top (17), a bottom (18) and coplanar sides (19). The top (17) and bottom (18) sides have transverse seals. The bag (10) is sealed using standard techniques that are well known and used in the art of packaging.

[0017] The top transverse seal is angled to provide a corner (11) for handling the bag (10). The corner is sealed with a thermal resistant film creating a cold corner. The cold corner (11) provides a point of handling for a consumer such that the consumer may use the cold corner (11) to open the bag without scalding of the fingers and/or hands. The angled seal that produces the cold corner (11) is typically wider than the side transverse seals, but generally not wider than one and half times the length of the cold corner (11). The length of the cold corner (11) will depend upon the size of the retort bag (10), however, it is contemplated that the cold corner (11) can generally be between 1  $\frac{1}{2}$  to 2  $\frac{1}{2}$  inches in length. Thus, the sealing pattern of the top transverse seal and the angled seal results in a corner that has dimensions that enable a consumer to handle the bag without scalding the person.

[0018] A horizontal heat seal (13) extends along the top of the bag to complete the sealing of the bag. A nip (12) is provided at the top (17) of the bag (10). An additional smaller nip (14) may also be provided at the top (17) of the bag. The nips are V-shaped cut-outs extending horizontally from the top (17) of the bag (10). The nips are used to initiate tearing along a horizontal line of weakness (not shown).

[0019] Referring to Figures 1 and 2, the bottom transverse seal (15) preferably extends in a curve downwardly and inwardly from at least one edge of the bag (10). The shape of the bottom transverse seal increases the ease of emptying the contents of the bag. Also, vents (16) may be included in the bottom transverse seal. It is well known to those skilled in the art that as the pressure inside a sealed bag (10) rises, the temperatures of vapors inside the sealed bag (10) also rises. To release pressure in the bag, a number of vents (16) typically are positioned in the bag to order to rupture and vent the bag during cooking.

[0020] Figure 2 and Figure 6 show the preferred embodiment of a bottom gusset (20). Gussets are widely used in the packaging industry to provide flexible packaging. The bottom gusset (20) may comprise edge folds (18) and an inwardly directed center fold (21). Prior to cooking, the bag (10) is generally in a collapsed state, as shown in Figure 1. Upon cooking, the bottom gusset (22) expands to increase the size of the bag (10) to contain the cooked food item, as shown in Figure 2.

[0021] Referring to Figures 3, 4 and 5, after cooking the food item, the consumer can use the point of handling, the cold corner (11) to remove the bag (10) from the microwave. The cold corner (11) remains cool to the touch during the cooking process and, thus provides a point of handling without scalding the consumer. The nip (12, 14) is provided at the top of the bag (10) and is located within the cold corner (11). Thus, the consumer holds the bag at the cold corner and utilizes the nip to begin tearing or opening the bag. The nips (12,14) are V-shaped cut-outs extending horizontally from the top edge of the bag. The nips are used to initiate tearing along a horizontal line of weakness (not shown), which is below the horizontal seal (13) of the bag (11), resulting in easy opening of the bag (10). It is contemplated that other means for opening the bag may be used in the present invention, for example, but not limited to the use of a perforated edge. The top of the bag may contain a perforated line extending horizontally from the top edge of the bag below the horizontal seal. The perforated line may also include a tab, which extends outward from the bag or a nip.

[0022] Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present invention. Accordingly, the appended claims are intended to include within their

scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.

**CLAIMS**

What is claimed is:

1. A retort bag comprising a top and bottom and coplanar side edges, the top and bottom having transverse seals, wherein the top transverse seal is angled to provide a cold corner for handling the bag.
2. The retort bag of claim 1, wherein the corner for handling is at least one and a half times as long as wide.
3. The retort bag of claim 1, wherein the bottom transverse seal extends in a curve downwardly and inwardly from at least one edge of the bag.
4. The retort bag of claim 1, wherein the corner comprises a nip for easy tearing of the bag.
5. The retort bag of claim 5, wherein the nip is a substantially V-shaped cut-out.
6. The retort bag of claim 1, wherein the corner is sealed with a thermal resistant film.
7. The retort bag of claim 6, wherein the corner is cool to touch after heating the bag.
8. The retort bag of claim 7, wherein the corner reduces scalding of a person handling the bag.
9. A method of sealing a retort bag having a cold corner comprising the step sealing a top portion of the retort bag in an angle to provide a cold corner for handling the bag.
10. The method of claim 8, wherein the cold corner is sealed with a thermal resistant film.

11. The method of claim 8, wherein the corner comprises a nip for easy tearing of the bag.
12. The method of claim 11, wherein the nip is a substantially V-shaped cut-out.

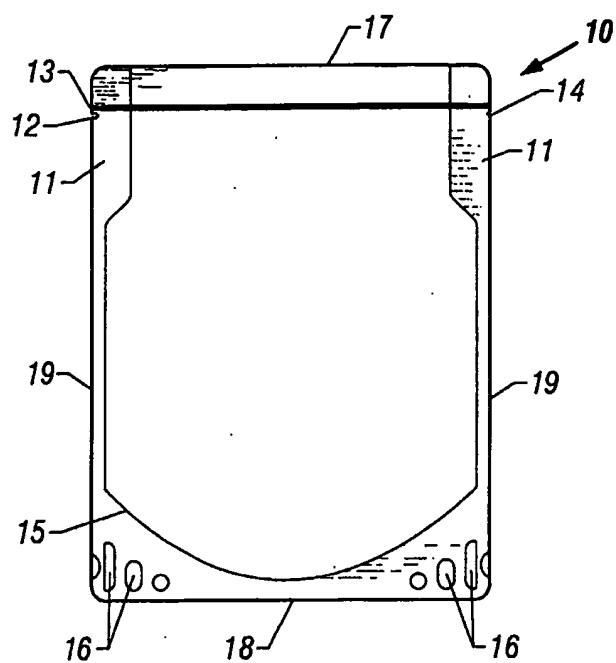


FIG. 1

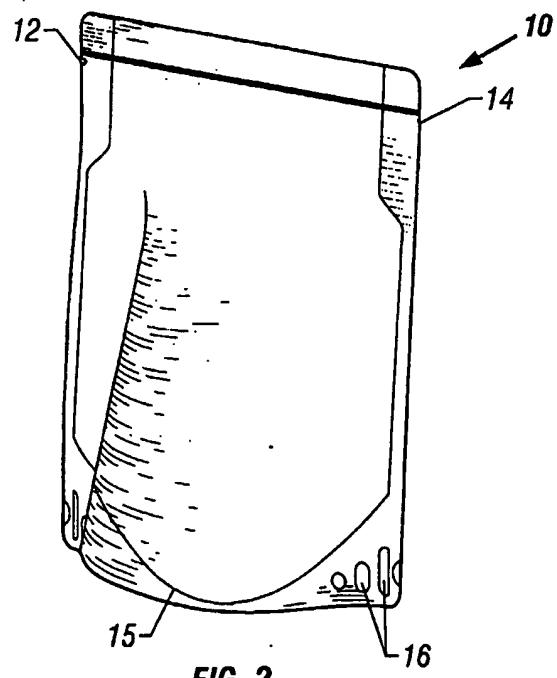


FIG. 2

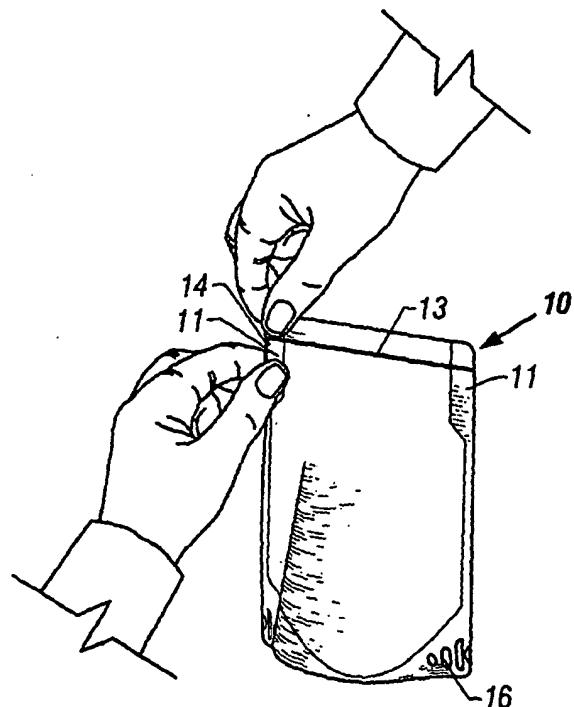


FIG. 3

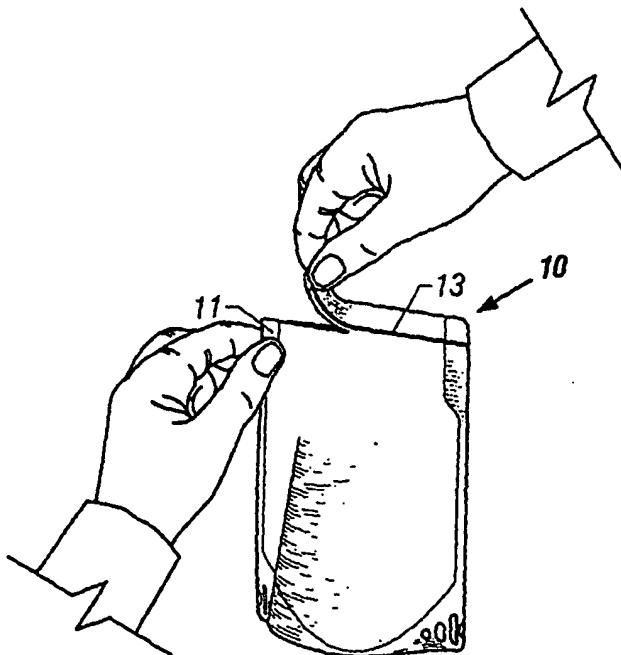


FIG. 4

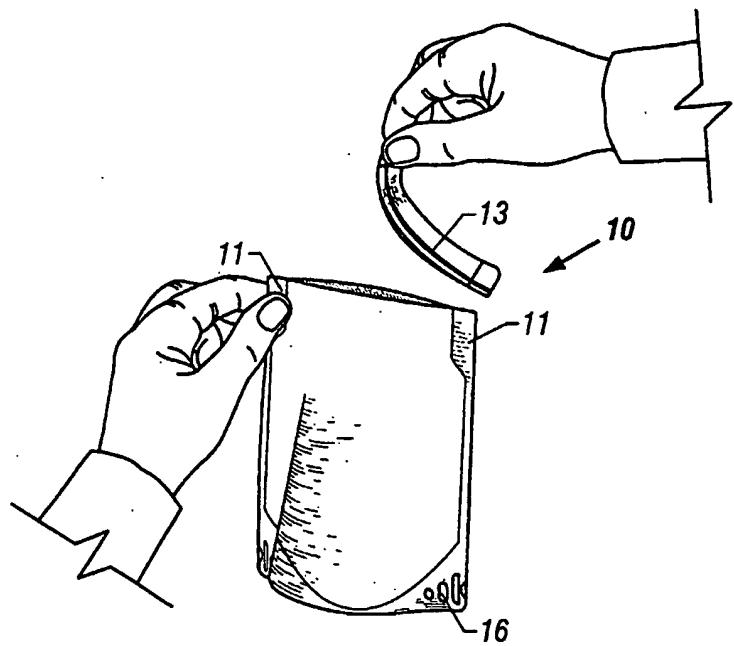


FIG. 5

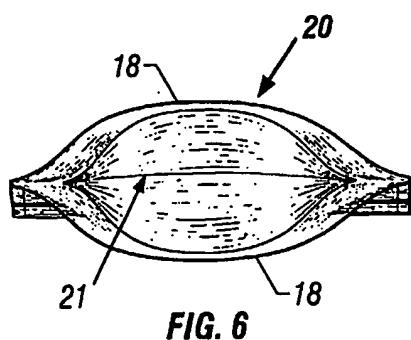


FIG. 6

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US03/01142

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : B6SD 33/16; H05B 6/54  
US CL : 219/727; 383/104, 122, 200; 426/107

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 219/727; 383/104, 122, 200; 426/107

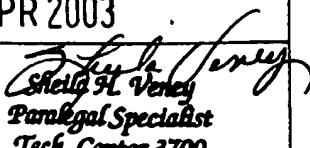
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,222,813 A (KOPP ET AL.) 29 June 1993 (29.06.1993), column 2, lines 25-28.	1, 4, and 6-11
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Y		1-3, 5, and 12
Y	US 5,060,803 A (BEER et al) 29 October 1991 (29.10.1991), column 5, lines 9-20	5 and 12
Y	US 5,059,036 A (RICHISON et al) 22 October 1991 (22.10.1991), column 6, lines 23-29	1 and 3

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 31 March 2003 (31.03.2003)	Date of mailing of the international search report <b>14 APR 2003</b>
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Stephen Garbe Telephone No. 703-308-1148  Stephen R. Verney Patent Specialist Tech. Center 3700